SpringCore Maven

Exercise 4: Creating and Configuring a Maven Project

Scenario:

You need to set up a new Maven project for the library management application and add Spring dependencies.

Steps:

1. Create a New Maven Project:

o Create a new Maven project named LibraryManagement.

2. Add Spring Dependencies in pom.xml:

o Include dependencies for Spring Context, Spring AOP, and Spring WebMVC.

3. Configure Maven Plugins:

o Configure the Maven Compiler Plugin for Java version 1.8 in the pom.xml file.

Solution:

Added dependencies in pom.xml

```
     http://maven.apache.org/xsd/maven-4.0.0.xsd (xsi:schemaLocation with catalog
 1 <project xmlns="http://maven.apache.org/POM/4.0.0"
 2          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
 3          xsi:schemaLocation="http://maven.apache.org/POM/4.0.0
 4                              http://maven.apache.org/xsd/maven-4.0.0.xsd">
 5
 6     <modelVersion>4.0.0</modelVersion>
 7     <groupId>com.library</groupId>
 8     <artifactId>LibraryManagement</artifactId>
 9     <version>1.0-SNAPSHOT</version>
10     <packaging>jar</packaging>
11
12     <properties>
13         <maven.compiler.source>1.8</maven.compiler.source>
14         <maven.compiler.target>1.8</maven.compiler.target>
15     </properties>
16
17     <dependencies>
18         <!-- Spring Context -->
19         <dependency>
20             <groupId>org.springframework</groupId>
21             <artifactId>spring-context</artifactId>
22             <version>5.3.36</version>
23         </dependency>
24
25         <!-- Spring AOP -->
26         <dependency>
27             <groupId>org.springframework</groupId>
28             <artifactId>spring-aop</artifactId>
29             <version>5.3.36</version>
30         </dependency>
```

```
31
32          <!-- Spring WebMVC -->
33●         <dependency>
34              <groupId>org.springframework</groupId>
35              <artifactId>spring-webmvc</artifactId>
36              <version>5.3.36</version>
37          </dependency>
38      </dependencies>
39
40●     <build>
41●         <plugins>
42              <!-- Compiler Plugin to use Java 8 -->
43●             <plugin>
44                  <groupId>org.apache.maven.plugins</groupId>
45                  <artifactId>maven-compiler-plugin</artifactId>
46                  <version>3.8.1</version>
47●                 <configuration>
48                      <source>1.8</source>
49                      <target>1.8</target>
50                  </configuration>
51              </plugin>
52          </plugins>
53      </build>
54
55 </project>
```

Created BookRepository.java

```
1  package com.library.service;
2
3  public class BookRepository {
4●     public void displayBooks() {
5          System.out.println("BookRepository: Displaying books from the database.");
6      }
7  }
```

Created BookService.java

```
1  package com.library.service;
2
3  public class BookService {
4      private BookRepository bookRepository;
5
6      // Setter for Dependency Injection
7●     public void setBookRepository(BookRepository bookRepository) {
8          this.bookRepository = bookRepository;
9      }
10
11●     public void showBooks() {
12          System.out.println("BookService: Calling BookRepository...");
13          bookRepository.displayBooks();
14      }
15 }
```

Created LibraryManagementApplication.java

```java
1  package com.library.service;
2
3  import org.springframework.context.ApplicationContext;
4  import org.springframework.context.support.ClassPathXmlApplicationContext;
5
6  public class LibraryManagementApplication {
7      private static ApplicationContext context;
8
9      public static void main(String[] args) {
10         context = new ClassPathXmlApplicationContext("applicationContext.xml");
11         BookService service = (BookService) context.getBean("bookService");
12         service.showBooks();
13     }
14 }
```

Created applicationContext.xml

```xml
<?xml version="1.0" encoding="UTF-8"?>
<beans xmlns="http://www.springframework.org/schema/beans"
       xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
       xsi:schemaLocation="http://www.springframework.org/schema/beans
                           https://www.springframework.org/schema/beans/spring-beans.xsd">

    <bean id="bookRepository" class="com.library.repository.BookRepository"/>

    <bean id="bookService" class="com.library.service.BookService">
        <property name="bookRepository" ref="bookRepository"/>
    </bean>

</beans>
```

Output:

```
BookService: Calling BookRepository...
BookRepository: Displaying books from the database.
```